

In the claims:

Claims 1-21 (canceled).

22. (previously presented) An antenna control system for a land-based mobile radio system comprising:

a sensor for detecting a position of a down-tilt antenna with respect to cell coverage and without respect to a satellite position;

an antenna controller communicating with said sensor for controlling said antenna position; and

a main controller communicating with said antenna controller in order to control said antenna controller.

23. (previously presented) The antenna control system according to claim 22, wherein said main controller is remotely located from said down-tilt antenna.

24. (previously presented) The antenna control system according to claim 22, further comprising a user interface communicating with said main controller to operate said main controller.

25. (previously presented) The antenna control system according to claim 23, wherein a user interface transmits data to said main controller to position said down-tilt antenna and receives data from said main controller indicating said antenna position.

26. (previously presented) The antenna control system according to claim 25, wherein said main controller informs said user interface that said main controller is unable to communicate with said antenna controller.

27. (previously presented) The antenna control system according to claim 25, wherein said main controller informs said user interface that it is unable to adjust said antenna position to a desired antenna position.

28. (previously presented) The antenna control system according to claim 22, further comprising an antenna controller memory connected to said antenna controller for storing at least one of an antenna address and said antenna position.

29. (previously presented) The antenna control system according to claim 22, further comprising a main controller memory connected to said main controller for storing at least one of an antenna address and said antenna position.

30. (previously presented) The antenna control system according to claim 22, further comprising:

a motor for adjusting said antenna position; and

a driver connected to said motor and said antenna controller for activating said motor.

31. (previously presented) An antenna control system for controlling a plurality of antennas comprising:

a plurality of sensors each for detecting positions of a respective one of said antennas;

a plurality of antenna controllers each communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna; and

a main controller communicating with said antenna controllers in order to control said antenna controllers.

32. (previously presented) The antenna control system according to claim 31 further comprising a serial interface connecting said main controller and said antenna controllers.

33. (previously presented) The antenna control system according to claim 31 further comprising a parallel interface connecting said main controller to each of said antenna controllers.

34. (previously presented) The antenna control system according to claim 31, further comprising a wireless communication interface including a plurality of transceivers individually connected to respective antenna controllers of said plurality of antenna controllers and a transceiver connected to said main controller for providing communications between said plurality of antenna controllers and said main controller.

35. (previously presented) The antenna control system according to claim 31, further comprising a plurality of antenna controller memories, wherein each antenna controller memory is respectively connected to each of said plurality of antenna controllers for storing at least one of an antenna address and said antenna position.

36. (previously presented) The antenna control system according to claim 31, further comprising a main controller memory connected to said main controller for storing at least one of an antenna address, and said antenna position.

37. (previously presented) The antenna system according to claim 31, further comprising:  
a plurality of motors each for adjusting said position of the associated antennas;  
and  
a driver connected to each of said plurality of motors for driving said plurality of motors.

38. (previously presented) An antenna control system for controlling a plurality of antennas located on a tower, each antenna having a position, said antenna control system comprising:

a plurality of sensors, each sensor associated with one of said plurality of antennas for detecting said antenna positions;

a plurality of antenna controllers each connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions; and

a main controller communicating with said plurality of antenna controllers for controlling said plurality of antenna controllers to adjust said antenna positions.

39. (previously presented) An antenna control system according to claim 38, wherein said main controller is remotely located from said plurality of antenna controllers.

40. (previously presented) An antenna control system according to claim 38, wherein said main controller is remotely located from said tower.

41. (previously presented) The antenna control system according to claim 38, further comprising, a plurality of motor driving assemblies for adjusting said antenna positions, wherein each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers.

42. (previously presented) The antenna control system according to claim 41, wherein the motor driving assemblies comprise a gear train of phase shifters to steer radiation emitted from said antennas; a stepper motor to drive said gear train of phase shifters; a gear shaft disposed between said gear train and said stepper motor; and a stepper-motor-driver for powering said stepper motor.

43. (previously presented) A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said antenna control system including a main controller, an antenna controller, an antenna motor driver assembly, and a sensor, said method comprising:

- (A) establishing a current position of said down-tilt antenna by;
  - (i) sending an antenna check command to said antenna controller,
  - (ii) reading a tilt position stored in a memory of said antenna controller, and
  - (iii) sending the tilt position read from said memory to said main controller; and
- (B) adjusting the tilt of the down-tilt antenna by;
  - (i) sending a change-tilt command to said main controller,
  - (ii) calculating a difference between said tilt position and said change-tilt command to determine an antenna adjust command, and
  - (iii) sending said antenna adjust command to said antenna motor driver assembly to adjust the tilt of the down-tilt antenna.

44. (previously presented) The method according to claim 43, wherein step (B) further comprises,

- (iv) reading the newly adjusted tilt position of said antenna via said sensor, and
- (v) writing said newly adjusted tilt position as said tilt position in said memory of said antenna controller.

45. (previously presented) A method of performing a system check on a tilt antenna control system having a main controller, a plurality of antenna controllers, and a user interface, said method comprising:

- (A) requesting a system check by a user via said user interface;
- (B) transmitting an antenna check command from said main controller to an addressed one of said plurality of antenna controllers;
- (C) returning an antenna position from said addressed antenna controller to said main controller; and
- (D) determining whether the addressed antenna controller responded.

46. (canceled)

47. (previously presented) An antenna control system comprising:  
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;  
an antenna controller communicating with said sensor for controlling said antenna position;  
a main controller communicating with said antenna controller in order to control said antenna controller; and  
a user interface communicating with said main controller to operate said main controller.

48. (previously presented) The antenna control system according to claim 47, wherein the user interface transmits data to said main controller to position said down-tilt antenna and receives data from said main controller indicating said antenna position.

49. (previously presented) The antenna control system according to claim 48, wherein said main controller informs said user interface that said main controller is unable to communicate with said antenna controller.

50. (previously presented) The antenna control system according to claim 48, wherein said main controller informs said user interface that it is unable to adjust said antenna position to a desired antenna position.



51. (previously presented) An antenna control system comprising:

- a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;
- an antenna controller communicating with said sensor for controlling said antenna position;
- a main controller communicating with said antenna controller in order to control said antenna controller, wherein said main controller is remotely located from said down-tilt antenna, and
- an antenna controller memory connected to said antenna controller for storing at least one of an antenna address and said antenna position.

52. (previously presented) The antenna control system according to claim 51, further comprising a main controller memory connected to said main controller for storing at least one of an antenna address and said antenna position.

53. (previously presented) The antenna control system according to claim 51, further comprising:

- a motor for adjusting said antenna position; and
- a driver connected to said motor and said antenna controller for activating said motor.

54. (previously presented) A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:

- (A) establishing a current position of the down-tilt antenna by;
  - (i) sending an antenna check command to an antenna controller,
  - (ii) reading a tilt position stored in a memory of the antenna controller,and
  - (iii) sending the tilt position read from the memory to a main controller; and
- (B) adjusting the tilt of the down-tilt antenna by;
  - (i) sending a change-tilt command to the main controller,
  - (ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and
  - (iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.

55. (previously presented) The method according to claim 54, wherein step (B) further comprises,

- (iv) reading the newly adjusted tilt position of the down-tilt antenna via a sensor,
- and
- (v) writing the newly adjusted tilt position as the tilt position in the memory of the antenna controller.

56. (previously presented) A method of performing a system check on a tilt antenna control system, said method comprising the steps of:

- (A) requesting a system check by a user via a user interface;
- (B) transmitting an antenna check command from a main controller to an addressed one of a plurality of antenna controllers;
- (C) returning an antenna position from the addressed antenna controller to the main controller; and
- (D) determining whether the addressed antenna controller responded.

57. (canceled)

58. (previously presented) The antenna control system according to claim 47, wherein the position of the down-tilt antenna is an electrical down-tilt.

59. (previously presented) The antenna control system according to claim 47, wherein the position of the down-tilt antenna is a position of at least one phase shifter.

60. (previously presented) The method according to claim 54, wherein the tilt position is an electrical down-tilt.

61. (previously presented) The method according to claim 54, wherein the tilt position is a position of at least one phase shifter.

62. (previously presented) An antenna control system comprising:

- a sensor for detecting a position of components used to down tilt an antenna and by this action determine the down tilt of the antenna;
- an antenna controller communicating with said sensor for controlling said antenna position;
- a main controller communicating with said antenna controller in order to control said antenna controller, wherein said main controller is remotely located from said antenna,
- a user interface communicating with said main controller to operate said main controller, and
- an antenna controller memory connected to said antenna controller for storing at least one of an antenna address and said antenna position.

63. (previously presented) The antenna control system according to claim 62, wherein the user interface transmits data to said main controller to position said antenna and receives data from said main controller indicating said position.